Weather Safety

In August 1995, six climbers died on K2 when hurricane-force winds overtook them high on the mountain. A year later, 12 climbers perished in a storm on Mt. Everest. These two events are only the most publicized weather-related tragedies that have occurred in the past few years. More quietly and frequently, wilderness travelers perish from hypothermia, suffer frostbite or heat stroke, get struck by lightning, or spend a cold, wet night out because of their failure to anticipate and prepare for changes in the weather.

Weather predication is an inexact science. There are patterns that you can prepare for if you do your homework, however. In the Rocky Mountains, afternoon thunderstorms are the norm during the summer, so climbers head for the summit well before dawn to allow themselves time to get back down before the thunderheads move in. In the Southwest, summer monsoons bring heavy rains in July and August. Often these rains are associated with flash flooding, so hikers must avoid narrow canyons that can be transformed into raging rivers by an upstream storm. In the winter, a heavy dump of snow may heighten avalanche danger while a summer desert trip following a long period of drought may mean there is no water along your planned route. Having this kind of basic information before you leave home is critical for planning your trip.

Once you've hit the trail, you need to become your own weatherman. Watch the skies, look for patterns, and learn to read the clouds. There are ten basic cloud types, each of which can provide clues about storms that may be brewing beyond the horizon. Most of us are familiar with classic, fluffy cumulus clouds. Typically cumulus clouds indicate fair weather, but in the summer they have a nasty tendency to pile up into cumulonimbus clouds or thunderheads. These clouds contain massive up and down drafts that create electrical energy or lightning and cause some of the most dangerous weather for backcountry travelers. You also might see a gradual lowering and thickening of clouds into a single bank of stratus. This usually means rain but without the accompaniment of lightning, while high wispy cirrus clouds can indicate that the weather is going to

deteriorate over the next 24 hours. Backcountry travelers must learn to recognize these signs. Failure to notice a change in the weather can put you in a dangerous or uncomfortable predicament.

Lightning

There are five things you can do to reduce your risk of being struck by lightning: time your visit to avoid peak thunderstorm activity, find safer terrain if a storm approaches, avoid trees—especially lone trees, avoid long conductors, and get in the lightning position.

As mentioned above, if you know the local weather patterns you can avoid getting caught in a most storms by timing your activities to be off exposed terrain before the weather deteriorates. Set a turnaround time and watch the clouds for changes. If you hear thunder, lightning is anywhere from one to ten miles away. In calm air, the sound travels ten miles, in a driving rain you may not hear thunder until the storm is right on top of you. Any sound of thunder should tell you it is time to reevaluate your position and if need be, head for safer ground.

Lightning is attracted to high objects, so try to get off peaks and ridges. If you cannot get to safer terrain, you best bet is to squat, balled up and as low as possible in the lightning position. Clasp your knees for balance and have only your feet touching the ground. According to John Gookin, the curriculum manager at the National Outdoor Leadership School, many people have died walking to safer terrain in an electrical storm, but no one has died while stopped in the lightning position. If a storm is on top of you, therefore, you are better off squatting than running for cover.

Away from the high peaks, you should avoid trees that are taller than their surroundings, or long conductors such as metal fences, power lines, railway tracks or handrails. Wet extended ropes can also conduct electricity. Wide-open ground can be dangerous because you may end up being the tallest object around. Search out depressions or ravines to get lower. If the storm is directly above you and you don't have time to get to more protected

terrain, have your group spread out at 50-foot intervals and get into the lightning position. Spreading out helps reduce the chance of multiple victims. If you are in a boat on the water, try to get to shore and well away from the water's edge. If this is not feasible, assume the lightning position in your boat.

Lightning can cause injury either from electrical shock, burns, or trauma. Current through your brain or torso may cause your breathing and heart to stop. Usually your heart will restart itself immediately, while breathing may take longer to resume. Patients may require CPR, or more frequently artificial respiration after an electrical shock. With lightning-caused injuries, treat patients who appear dead first. Your prompt action may save their lives. Burns and trauma should be treated according to normal first aid procedures.

Links and Resources:

The National Lightning Safety Institute maintains a website that provides information about lightning accidents, personal safety and preventative measures. Go to: http://www.lightningsafety.com/ for more information.

The Lightning Injury Home page contains useful information about injuries—both physical and psychological—resulting from lightning strikes. It has links to lightning strike victims support group, as well as information about basic safety precautions. http://www.uic.edu/~macooper/ltnright.htm

The Federal Emergency Management Agency posts fact sheets on their website. For information about lightning safety, go to http://www.fema.gov/library/thunderf.htm

There are many weather websites on the Internet. One of the most user-friendly and up-to-the-minute is the Weather Channel's site at http://www.weather.com/

Books

Graydon, Don, *Mountaineering: The Freedom of the Hills,* 5th Edition, The Mountaineers, Seattle, WA, 1992

Harvey, Mark, *The National Outdoor Leadership School's Wilderness Guide,* Fireside Books, New York, 1999

Hiking, camping and climbing guidebooks usually provide a section on local weather patterns that can be useful when planning a trip. Simple weather books such as *The Golden Guide to Weather* can get you started with understanding cloud types and frontal systems.